[Departure of young St. John for the Desert.]

ESSAYS ON THE LIVES OF REMARKABLE PAINTERS.—No. XII.

Filippo Lippi and Angelico da Fiesole.

Contemporary with Masaccio lived two painters, both gifted with surpassing genius, both of a religious order, being professed monks—in all other respects the very antipodes of each other; and we find the very opposite impulses given by these remarkable men prevailing through the rest of the century at Florence and elsewhere. From this period we date the great schism in modern art, though the seeds of this diversity of feeling and purpose were sown in the preceding century. We now find, on the one side, a race of painters who cultivated with astonishing success all the mental and mechanical aids that could be brought to bear on their profession; profoundly versed in the knowledge of the human form, studying and imitating the various effects of nature in colour and in light and shade, without any higher aspiration than the representation of beauty for its own sake, and the pleasure and the triumph of difficulties overcome: on the other hand, we find a race of painters to whom the cultivation of art was a sacred vocation; the representation of beauty a means, not an end; and by whom nature in her various aspects was studied and deeply studied, but only for the purpose of embodying whatever we can conceive or reverence as highest, holiest, purest in heaven and earth, in such forms as should best connect them with our intelligence and with our sympathies.

The two classes of painters who devoted their genius to these very diverse aims have long been distinguished in German and Italian criticism as the *Naturalists* and the *Idealists* or *Mystics*, and these denominations are now becoming familiarized in our own language. During the fifteenth century we find in the various schools of art scattered through Italy these different aims more or less apparent, sometimes approximating, sometimes diverging into extremes, but the distinction always apparent, and the influence exercised by those who pursued their art with such very different objects—with such very different feelings—was of course different in its result. Painting, however, during this century was still almost wholly devoted to ecclesiastical purposes; it deviated into the classical and secular in only two places, Florence and Padua.

In the convent of the Carmelites, where Masaccio has painted his famous frescoes, was a young monk, who, instead of employing himself in the holy offices, passed whole days and hours gazing on those works, and trying to imitate them. He was one whom poverty had driven, as a child, to take refuge there, and who had afterwards taken the habit from necessity rather than from inclination. His name was Filippo Lippi (which may be translated Philip the son of Philip), but he is known in the history of art as Fra Filippo (Friar Philip). In him, as in Masaccio, the bent of the genius was early decided; nature had made him a painter. He studied from morning to night the models he had before him; but restless, ardent, and abandoned to the pursuit of pleasure, he at length broke from the convent and escaped to Ancona. The rest of his life is a romance. On an excursion to sea he was taken by the African pirates, sold as a slave in Barbary, and remained in captivity eighteen months. With a piece of charcoal he drew his master's picture on a wall, and so excited his admiration, that he gave him his freedom, and dismissed him with presents. Fra Filippo then returned to Italy, and at Naples and at Rome gained so much celebrity by the beauty of his performances, that his crime as a runaway monk was overlooked, and, under the patronage of the Medici family, he ventured to return to Florence. There he painted a great number of admirable pictures, and was called upon to decorate many convents and churches in the neighbourhood. His life during all this time appears to have been most scandalous, even without consideration of his religious habit; and the sums of money he obtained by the practice of his art were squandered in profligate pleasures. Being called upon to paint a Madonna for the convent of St. Margaret at Prato, he persuaded the sisterhood to allow a beautiful novice, whose name was Lucretia Buti, to sit to him for a model. He carried her off from the convent, to the great scandal of the community and the inexpressible grief and horror of her father and family. Filippo was at this time nearly sixty, and but for his great fame and the powerful protection of the Medici he would have paid dearly for this offence against morals and religion. His friends Cosmo and Lorenzo de' Medici obtained from the pope a dispensation from his vows, to enable him to marry Lucretia; but he does not seem to have been in any haste to avail himself of it; the family of Lucretia, unable to obtain any public reparation for their dishonour, contrived to avenge it secretly, and Fra Filippo died poisoned, at the age of 69.

This libertine monk was undoubtedly a man of extraordinary genius, but his talent was degraded by his immorality: he adopted and carried on all the improvements of Masaccio, and was the first who invented that particular style of grandeur and breadth in the drawing of his figures, the grouping, and the contrast of light and shade, afterwards carried to such perfection by Andrea del Sarto. He was one of the earliest painters who introduced landscape backgrounds, painted with some feeling for the truth of nature; but the expression he gave to his personages, though always energetic, was often inappropriate, and never calm or elevated: in the representation of sacred incidents he was sometimes fantastic and sometimes vulgar; and he was the first who desecrated such subjects by introducing the portraits of women who happened to be the objects of his preference at the moment. There are many pictures by Fra Filippo in the churches at Florence; two in the gallery of the Academy there; five in the Berlin Museum; in the Louvre there is one undoubtedly genuine, and of great beauty, marked by all his characteristics: it represents the Madonna standing, and holding the Infant Saviour in her arms; on each side are angels and a kneeling monk. The attitude of the Virgin is grand; the head commonplace, or worse; the countenance of the Infant Christ, heavy; the angels, with crisped hair, have the faces of street urchins; the adoring monks are wonderful for the natural dignity of their figures and the fine expression in their upturned faces: the whole picture is admirably executed; it was painted for the church of the Santo Spirito at Florence, and is a celebrated production. The writer does not know of any picture by Fra Filippo now in England. He left a son, Filippo Lippi, called Filippino (to distinguish him from his father), who became in after years an excellent painter, and whose frescoes in the Chapel of the Brancacci emulated those of Masaccio.

[To be continued.]

ECONOMICAL USES OF THE OAK.

THE useful purposes to which the Oak and its produce are applied are so numerous, that we could perhaps scarcely venture to say that we had enumerated them all, however industrious our search might be. In almost every department of the mechanical arts, in almost every kind of building, the produce of this noble tree is employed, rendering to man an incalculable amount of benefit. In enumerating some of the most prominent of these, it will be convenient to treat in succession of certain distinct species, since each one has some useful properties distinct from the others. We will avail ourselves of Mr. Loudon's classification of the Oaks into British Oaks, Turkey Oaks, White Oaks, Chestnut Oaks, Red Oaks, Black Oaks, Willow Oaks, Holly Oaks, Live Oaks, and Woolly-leaved Oaks; and will take, as our principal sources of information, such portions of his 'Arboretum Britannicum' as illustrate the practical uses of the oak in the arts.

Of oaks in general, Mr. Loudon says:—"They are trees of temperate climates, mostly of large size, and, in point of usefulness to man, only to be equalled by the pine and fir tribe. The latter may be considered the domestic, and the former the defensive, trees of civilized society, in the temperate regions throughout the world. The oak, both in Europe and America, is the most majestic of forest-trees. It has been represented by Marquis as holding the same rank among the plants of the temperate hemispheres, that the lion does among quadrupeds, and the eagle among birds: that is to say, it is the emblem of grandeur, strength, and duration; of force that resists, as the lion is of force that acts. In short, its bulk, its longevity, and the extraordinary strength and durability of its timber, attest its superiority over all other trees for buildings that are intended to be of great duration, and for the construction of ships. In one word, it is the king of forest-trees."

British Oak.—When we restrict ourselves, for a time, to this one species of the oak, we cannot fail to call to mind the numberless associations connected with the name "British Oak,"—national, mechanical, and agricultural. The oak-forests appear to have been formerly very numerous in Britain; and Professor Burnett gives the following curious exemplification of the manner in which we may consistently search for evidence of this fact. "For one Ash-ford, Beech-hill, Elm-hurst, or Poplar, we find a host of Oaks, Oakleys, Actons, Acklands, Akenhams, Acringtons, and so forth. The Saxon *ac, aec, aac,* and the later *ok, okes, oak,* have been most curiously and variously corrupted. Thus we find *ac, aec,* degenerating into *ak, ack, aike, acks,* whence *ax, exe;* often, also, aspirated into *hac, hace,* and *hacks.* In like manner we trace *oak, oke, ok, oc, ock, œck, ocke, oks, ocks, ockes,* running into

oar, *ox*, *oxes*, with their further corruptions *auck*, *uck*, *huck*, *hoke*, and *wok*. As an example of this last extreme, the town Oakingham, or Ockingham, is at this day called and spelt indifferently Oakingham, Okingham, or Wokingham; and Oaksey, or Oxessey, are two common ways of writing the name of one identical place. Oakham, Okeham, Ockham, and Wockham, Hokenorton on the river Oke, Woking in Surrey, Wacton in Herefordshire and Norfolk, Okey or Wokey in Somersetshire, Oakefield or Wokefield in Berkshire, and Old or Wold in Northamptonshire, with the provincial Whom or Whoam, are other similar corruptions."

The use of British oak as a timber-tree dates farther back than we have any means of determining. This timber is more durable, in every position in which it can be placed, than any other tree which abounds in large quantities in Europe. It is hard, tough, tolerably flexible, strong without being too heavy, not easy to splinter, and not readily penetrated by water. Some woods are harder, but they are more fragile; and others are more flexible, but do not possess so much toughness, hardness, and durability. In 1827 an experiment was made in the New Forest, Hampshire, with a piece of British oak, to determine its strength. It was reduced to the dimensions of five inches square, and eleven feet long, placed in two firm supports, exactly eleven feet apart, and it was found that four and three-quarter tons, three quarters, seventeen pounds, or more than ten thousand pounds, were required to break the beam. When the grain of oak is twisted, no timber is so well adapted for posts, either in house-building or in setting up mills, engines, or large machines. No wood lasts longer where it is subject to be alternately wet and dry; and oak piles have been known to endure many centuries. Shingles, pales, and laths last longer when made of this wood than of any other; and casks, and every other description of cooper's work, are most durable, and best adapted for containing wines, ales, and other liquors, when they are made of oak. Oak is extensively employed for the spokes of wheels, for which the small slow-growing variety of mountainous districts is preferred to the more rapid-growing and larger oak of the valleys. Oaks of from fifteen to thirty years' growth make the most durable poles. The young tree yields slender rods, well calculated for hoops, walking-sticks, and the handles of carters' whips.

The examples yet remaining of the use of British oak centuries ago, are very numerous. Professor Burnett possessed a piece of oak from King John's palace at Eltham, perfectly sound, fine, and strong, which can be traced back upwards of five hundred years. The doors of the inner chapels of Westminster Abbey are said to be coeval with the original building. The oaken shrine of Edward the Confessor is nearly eight hundred years old. One of the oaken coronation chairs in Westminster Abbey has been in its present situation more than five centuries. In Gloucester Cathedral there are thirty-one stalls of rich tabernacle-work on either side, executed of oak in the reign of Edward III., and beautifully perfect. In digging away the foundation of the old Savoy Palace, London, which was built nearly seven centuries ago, the whole of the piles, many of which were of oak, were found in a state of perfect soundness, as also was the planking which covered the pile-heads. Professor Burnett says:—"The piles which supported the buttresses and immense uncouth starlings which confined the waterway, and so greatly disfigured old London Bridge, were some of them of oak; and I have a specimen of one which is far from being in a rotten state; and the still older piles on which the bridge piers rested were also in a very strong and sound condition; nay, those stakes which it is said the ancient Britons drove into the bed of the Thames to impede the progress of Julius Cæsar, near Oatlands, in Surrey, some of which have been removed for examination, have withstood the destroyer Time for nearly two thousand years." In the 'Vetusta Monumenta' a description is given of a wooden church or chapel, near Ongar, in Essex, supposed to be nine hundred years old. The nave of this church is formed of the trunks of oaks, about eighteen inches in diameter, split through the middle, and roughly hewn at each end to let them into a sill at the bottom, and a plank at the top, where they are fastened by wooden pegs. The building is about thirty feet long, half as wide, and six in height to the bottom of the roof; and most of the oaks are still strong and sound.

In a maritime country like England, however, the use of oak in ship-building is perhaps more important than any of its other uses; and that it has been so employed from a remote period we have abundant evidence. Some years ago an ancient vessel was discovered in the river Rother, in Kent, which is supposed to have lain there since the time of Alfred: the wood, which was oak, was found to be perfectly sound, and nearly as hard as iron. The same may be said of two or three ancient vessels discovered in the drains or dyke of Lincolnshire, and of which one has been deposited in the British Museum. (See 'Penny Magazine,' No. 634.)

In the construction of the modern English navy the consumption of oak timber has been enormous, especially in time of war. There was a Report presented to government during the war, in which the extent of this consumption was calculated, in reference to a navy such as was possessed by England in 1806. The tonnage was taken at 776,087 tons, and it was stated that to build such a navy it would require 1,164,085 loads of timber. Supposing the average duration of a ship to be 14 years, the annual quantity of timber required would be 83,149 loads, exclusive of repairs, which were calculated to require 27,000 loads, making the whole about 110,000 loads. Three thousand loads of timber are required for a 74-gun ship; and the government ships were estimated to be equal in dimensions and quantity of timber to twenty seventy-fours built annually; that is, the amount of ship-building every year in the royal navy was equivalent to twenty 74-gun ships. Taking this as a datum, Mr. M'Culloch remarks:—"It has been supposed that not more than forty oak-trees can stand on an acre of ground, so as to grow to a full size, fit for ships of the line, or to contain each one load and a half of timber: 50 acres, therefore, would be required to produce a sufficient quantity of timber to build a 74-gun ship, and 1000 acres for 20 such ships; and as the oak requires at least 100 years to arrive at maturity, 100,000 acres would be required to keep up a successive supply for maintaining a navy of 700,000 or 800,000 tons." This state of things is, however, applicable only to such a warlike position as England was placed in at that time.

Specimens of British oak have occasionally been converted to useful purposes, presenting very extraordinary dimensions. Thus, one of the rooms in the house of Sir John Dryden, at Ashby Canons, thirty feet long and twenty feet wide, was entirely floored and wainscoted from a single oak. The same is said of a room in the mansion at Tredegar Park, measuring forty-two feet by twenty-seven. In the hall at Goodrich Castle, Herefordshire, there is a beam of oak, without a knot, sixty-six feet long, and two feet square throughout its whole length. Dr. Plot notices a table in Dudley Castle hall, cut out of a tree which grew in the park, all of one plank, above seventy-five feet long, and three feet wide throughout its whole extent; and which, being too long for the castle hall, had twenty-two feet cut from it. The mainmast of the Royal

Sovereign, built in the time of Charles I., was ninety-nine feet long, and three feet in diameter, formed out of one piece of oak. The accounts given of the dimensions of living trees are so numerous, and have been so often quoted, that we may pass them over.

Besides its use in ship-building and house-building, the wood of the oak is used for a variety of purposes. Evelyn says that of the root of the oak were formerly made handles to daggers and knives, tobacco-boxes, mathematical instruments, panels for pictures, and various minor articles. In the present day the wood of the oak, especially when distinguished for a more than usually elegant conformation of fibre, is frequently cut into veneers, and used for cabinet-work.

The leaves, gathered green and dried, furnish in some places a winter forage for sheep, goats, deer, &c. In more common purposes, the leaves, after they have dropped from the tree, are swept up, and used in gardening as a substitute for tanner's bark, in producing heat by fermentation in hothouses, beds, &c.

The acorns have in all ages been a very valuable part of the oak-tree. According to Eveiyn, a peck of acorns a day, with a little bran, will make a hog increase a pound weight per day for two months together. In English parks, acorns form an important part of the winter food of deer; and were the tree substituted for the elm, the ash, and a number of others which are planted in hedge-rows, there would be a greatly increased supply of this kind of food throughout the country. Acorns are given raw or boiled to poultry; and it is said to be easy to accustom horses, cattle, and sheep to eat them. In one of the volumes of the 'Library of Entertaining Knowledge' ('Timber Trees') it is remarked:—"Whether the custom existed among the ancient Britons, or (as is more probable) was imported by the Saxons who came from the thick oak-forests of Germany, it is certain that, during the time when they held sway in this country, the fattening of hogs with acorns in the forests was accounted so important a branch of domestic economy, that at about the close of the seventh century King Ina enacted the *panage laws* for its regulation. The fruit of the oak then formed gifts to kings, and part of the dowries of queens. So very important was it, indeed, that the failure of the acorn crop was recorded as one of the principal causes of famine. One of the most vexatious acts of William the Conqueror, in his passion for converting the whole of the forests into hunting-grounds, was that of restricting the people from fattening their hogs; and this restriction was one of the grievances which King John was called upon to redress at the triumph of Runnimede, where his assembled subjects compelled him to sign the Magna Charta. It is to be observed that swine's flesh was the principal food of most nations in the earlier stages of civilization; and this is to be attributed to the extreme rapidity with which the hog species multiply. Up to a recent period, large droves of hogs were fattened upon the acorns of the New Forest in Hampshire, under the guidance of swineherds, who collected the herds together every night by the sound of a horn."

The bark of oak is a most valuable tanning ingredient. It is employed by English tanners more extensively than any other substance for this purpose; indeed, for a long time it was the only one employed by English tanners: but when the researches of Sir Humphry Davy and other chemists brought to light the nature of the vegetable principle which gives a tanning quality to oak-bark, other substances were found to contain the same principle. The manner in which the bark is stripped from the trees for the purposes of the tanner has been detailed in 'Penny Magazine, No. 181. There are no means of knowing the quantity of bark used every year in the kingdom, but it must be enormous; for besides the vast (but unrecorded) supply furnished by the oaks growing in England, there are forty thousand tons of oak-bark imported yearly from abroad. Every part of the oak abounds in astringent matter; and even the leaves and sawdust will tan leather, linen-cloth, netting, or cordage, which is to be much exposed to the weather. The Highlanders dye their yarn of a brown colour with oak-bark; and in many other countries it is used for dyeing as well as for tanning.

[To be continued.]

Singapore Harbour.—At day-dawn, when the sky receives its first bright tints from the rising sun, and the morning mist yet shrouds the marshes and hangs about the damp verdure, the harbour is alive with boats and resounding with the noisy hum of awakened crowds; the long low canoe of the Malay, propelled by twenty or thirty paddles, each stroke accompanied by their peculiar cry; punts, the undoubted progeny of the mother junks, conveying to the shore the Chinese mariner with his fan and umbrella; the sanpans, with their clean matted seats and plantain-leaf awnings, waiting for passengers, and promiscuously manned by the Hindoo, the Moor, the Malay, or the Arab, the wild native of Borneo or Amboyna, Madura, or the more independent and manly inhabitant of Bali; the unwieldy junk herself, with painted eyes, which are presumed to guide it in safety clear of shoals and dangers, its large masts without rigging, mat-sail, high-peaked stern (not unlike ours of the fifteenth century) bedaubed with flying dragons, painted devils, and proverbs, and the poop entirely occupied by the indispensable jos, disgorging scores of chattering Chinese; boats laden with fruit of every description, amongst which pine-apples predominate, arriving from distant creeks, ready for the morning market; and the light fishing-canoe, with its patient occupant, who will sit for hours under the shade of his light grass-hat, are amongst the many novelties that attract the attention of the stranger.—*Capt. G. G. Loch's Closing Events of the Campaign in China.*

Emigration.—Why should there not be an "Emigration Service" and Secretary, with adjuncts, with funds, forces, idle navy-ships, and every increasing apparatus; in fine, an *effective system* of emigration; so that at length, before our twenty years of respite ended, every honest, willing workman, who found England too strait, and the organization of labour not yet sufficiently advanced, might find likewise a bridge built to carry him into new western lands, there to "organize," with more elbow-room, some labour for himself? There to be a real blessing, raising new corn for us, purchasing new webs and hatchets from us; leaving us at least in peace; instead of staying here to be a physical-force Chartist, unblessed and no blessing! Is it not scandalous to consider that a prime minister could raise within the year, as I have seen it done, a hundred and twenty millions sterling to shoot the French; and we are stopt short for want of the hundredth part of that, to keep the English living? The bodies of the English living; and the souls of the English living:—these two "services," an education service and an emigration service—these, with others, will actually have to be organized! A free bridge for emigrants: why, we should then be on a par with America itself, the most favoured of all lands that have no government; and we should have, besides, so many traditions and mementoes of priceless things which America has cast away. We could proceed deliberately to "organize labour," not doomed to perish unless we effected it within year and day; every willing worker that proved superfluous finding a bridge ready for him. This verily will have to be done; the time is big with this. Our little isle is growing too narrow for us; but the world is wide enough yet for another six thousand years. England's sure markets will be among new colonies of Englishmen in all quarters of the globe. All men trade with all men, when mutually convenient, and are even bound to do so by the Maker of men. Our friends of China, who guiltily refused to trade, in these circumstances, had we not to argue with them, in cannon-shot at last, and convince them that they ought to trade! "Hostile Tariffs" will arise to shut us out, and then again will fall to let us in; but the sons of England, speakers of the English language, were it nothing more, will in all times have the ineradicable predisposition to trade with England.—*Past and Present, by Thomas Carlyle.*

[Irish Pig-drover.]

PIGS AND PIG-DROVERS.

Ireland should be, one would think, a sort of paradise for pigs; for there the useful animal is treated with a degree of respect unknown to his brethren in England, though here his 'creature-comforts' may be greater, but then his English owner looks rather to his own table as the animal's final destination, while the more disinterested Irish proprietor, generally speaking, has no such sordid considerations, for seldom does a bit of the flitch find its way into his pot. English ideas of comfort are very comprehensive, and many persons, like the late Mr. Cobbett, would scarcely let their pigs lodge in a less comfortable manner than they themselves could put up with 'on a pinch.' In Ireland the pig is a joint-tenant and fellow-lodger with the peasant, feeding almost at the same board with him; and these privileges are most cheerfully and gratefully conceded. "Sure, and doesn't he pay the rent?" is the exclamation nearly all over Ireland. The English traveller may look with distaste at the arrangement which subsists between pig and proprietor, but soon he finds that a landholder might as well be without title-deeds as the holder of a patch of land without a grunting tenant to divide the cabin with him. Mr. Inglis, in his 'Journey throughout Ireland,' remarks:—"I used to be shocked at seeing a pig's snout at a cabin-door, and looked at such a spectacle as a proof of wretchedness; but now I began to bless the sight, and to pity more the poor wretches who possessed no pig. It is true, indeed, that things were still better when a pig-sty was visible; for that gave evidence both of the existence of the pig and of the superior comfort of its owner; but still it was always to me a pleasant sight, where, if no pig-sty was visible, I saw him that pays the 'rint' walk leisurely in and out of the cabin-door, or heard his comfortable grunt within. The greatest example of individual prosperity I observed among the poor in the neighbourhood of Thomastown, was finding three pigs resident in one cabin." The Reports of the Assistant Commissioners under the Irish Poor Law Inquiry abound with facts showing the very great importance and value attached to the possession of a pig by the peasantry, and the attention which they pay him. One extract will be sufficient:—"Whatever may be the poverty and privations of the labourer and his family, the pig is almost always sure to be coddled up with a good warm dinner and a snug corner in the cabin, and the Assistant Commissioners have more than once been puzzled to decide whether his or the children's bed was composed of the cleanest and the largest quantity of straw. The great importance of this animal to the labourer and smallest occupier (their only means, in almost all cases, of paying their rent) is quite sufficient to account for the care and anxiety which are evinced to promote his thriving." (*Appendix* F, *Poor Inquiry*, p. 385.)

A very large proportion of the pigs reared in Ireland find their way either alive or cured into the English market. Irish rents could not be paid but for English prices, and therefore the Irish peasant and small or large farmer must dispose of his live-stock for exportation to England, they themselves enjoying but a small portion of the fruits of their care and labour, as the bulk is absorbed in payment of rent. As nearly every head of a family amongst the rural population endeavours to obtain land as the surest resource against starvation, the agricultural exports must, of course, be very large. Between 1825 and 1835 they rose in value from 9,243,823*l.* to 16,693,685*l.*, being an increase of 7,450,475*l.* a year, in the short space of ten years. This has been almost entirely the effect of steam-navigation,

which has wonderfully facilitated the means of access to the English market from Ireland, and at the same time increased the power of paying a high rent. Take pigs only, a great source of rent, as already shown; and in 1801 there were not two thousand imported from Ireland into all the ports of Great Britain; and in the following years as under:—

1805.	1809.	1813.	1817.	1821.
6383	4712	14,521	24,193	104,501

In 1821 steam-navigation was in its infancy, but it was already beginning to tell on the export trade in live-stock. In 1837 its powers had increased to such an extent, that the number of pigs brought alive from Ireland into the port of Liverpool only was 595,422, of the average value of fifty shillings, making a gross sum of 1,488,555*l*. (Porter's *Progress of the Nation*, vol. ii., p. 82.) If we add the imports into Bristol, the number of pigs will probably be 700,000, and their aggregate value 1,750,000*l*. There are no means of ascertaining the imports at the other ports of Great Britain, as, since 1825, the trade between the two countries has been assimilated to a coasting-trade, and, except for corn and grain, no official returns are required to be kept. At the same time the export of bacon and hams, from 1825 to 1835, did not decrease, but it cannot be ascertained whether the quantity of pork exported fell off, though it probably did. The export trade in pigs is very active at all the eastern ports of Ireland. It is probable that more than six-eighths of the total number received in Great Britain are imported at Liverpool. The cost of conveyance from Dublin to Liverpool is from one shilling and sixpence to four shillings per head, according to size; and from Drogheda to Liverpool from one to three shillings. On reaching Liverpool they are generally conveyed to Manchester by a railway waggon, the weight carried being from forty-five to fifty cwt. The weight of the pigs varies from half a cwt. to two cwt., and the charge is about twenty-five shillings per waggon between the two towns. From Manchester the animals are conveyed by railways farther into the interior. In a provincial paper we read the other day the following paragraph, which shows that the English country-dealers find it answer their purpose to attend the pig-market at Liverpool:—"Early on Tuesday morning a number of excellent bacon pigs were to be seen slaughtered in the shop of Mr. Barlow, Shamble-street, Barnsley, which were at Liverpool, above one hundred miles from that place, on Monday afternoon, at five o'clock. This extraordinary piece of work was done by Mr. Thomas Fleetwood, pig-dealer, who left the Royal Oak Inn, Barnsley, at a quarter past five o'clock on Sunday afternoon, and consequently travelled upwards of two hundred miles in thirty-eight hours, and drove the pigs above six miles to and from the railway stations." (*Doncaster Gazette.*) The trade of a pork-butcher was comparatively unknown twenty years ago, even in many towns of large size; but it has been gradually increasing in extent and importance. It is, of course, quite a distinct calling from that of the dealer in bacon and hams. The Irish bacon is not of such good quality as that fed in England, as the animal is generally fattened on potatoes only, while the best practice here is, when half fat, to finish off with pease-meal or barley-meal. The agricultural labourers, in counties where their condition is most comfortable, know that it is most profitable to buy the higher-priced English bacon, which swells in the boiling, and is at once more palatable and substantial than the potato-fed bacon of Ireland. In order to obtain the advantages of the English market, great improvements have taken place in the breed of pigs kept in Ireland. "The breed has been quite changed within a few years, and is now excellent. The increase in the export of pigs from Ireland is more striking than that of any other article of produce, and to that degree have the tillage-farmers profited by steam navigation." (Lord Clement's *Pamphlet on Ireland*, 1838.) This improvement is frequently adverted to in the Reports under the Poor Inquiry Commission.

The subject of the cut brings us to a consideration of the pig-trade in Ireland itself. The amount of bargaining and dealing involved in the transfer of Irish pigs from their owners to the butcher and curer is far greater than is occasioned by the sale in a similar way of ten times the number of sheep; for in one case pretty nearly every pig has a separate owner, while each flock-master has a number of sheep for sale at the same time. The number of pig-jobbers and pig-drovers in Ireland is, of course, very large. The dealing is exactly of a description adapted to the commercial character of the Irish of a particular class. There is scope here for fun, 'blarney,' and cunning, and many a rich scene takes place before a bargain is struck. Mr. Inglis gives a specimen of the mode of proceeding in the market-place of Cashel:—"A man, a pig-dealer, would come to a countryman who held a pig by a string: 'How much do you ask?' 'Twenty-eight shillings,' the answer might be. 'Hold out your hand,' says the buyer; and the proprietor of the pig holds out his hand accordingly: the buyer places a penny in it, and then strikes it with a force that might break the back of an ox. 'Will ye take twenty shillings?' The other shakes his head. 'Ask twenty-four, and see if I'll give it ye,' says the pig-merchant. The owner again shakes his head. It is probable that by this time some one among the bystanders—for there is always a circle formed round a bargain-making—endeavours to accommodate matters; for it is another instance of the kindly feeling towards each other, that all around are anxious that the bargain should be concluded. Again the merchant says, 'Hold out your hand,' and again a tremendous blow is struck, and a new offer made, till at last they come within a shilling, perhaps, of each other's terms, when the bargain is struck; and the shilling about which they differed, and probably two or three others, are spent in whiskey-punch 'screeching hot.'" The pigs are then most probably either driven to the shipping port or to the large curing establishments, or, perhaps, sold to those who fatten and cure, but do not breed pigs.

SUBSTITUTES FOR COAL.

WITHIN the last few years a surprising number of new projects have been brought under the notice of the public, having for their object the preparation of a *fuel* which shall be either cheaper or better, or both, than coal. The high price of the latter fuel, together with a rapidly increasing desire to lessen the nuisance of smoke, have probably been the chief reasons which have led to these projects; and it is not improbable that much good may be wrought by this movement. Indeed, some of the kinds of fuel introduced have already met with much approval from engineers and others. Generally speaking, small coal from the pit's mouth, and various bituminous and oily substances, ashes, dust, and peat, are the ingredients, one or more of which constitute the artificial fuel. A brief notice of a few of these may be here given, sufficient to show their general character.

An artificial fuel, introduced by Mr. Oram, has for its basis the hitherto neglected small coal, which is accumulated at the mouths of the coal-pits, and which has been so very extensively turned to waste. At the meeting of the British Association at Newcastle, Professor Buckland stated that he, in common with many

others, lamented the loss of the thousands of tons of small coal which were burned to waste at the pits' mouths; and after adverting to the fact that he had called attention to the matter in his 'Bridgewater Treatise,' he expressed his gratification that a mode had been devised of uniting the particles of this small coal into masses, and forming thereby a valuable fuel. He stated that he had used the new fuel side by side with the best Newcastle coal, and found it equal both in light and heat. Mr. Buddle, the eminent coal-viewer, afterwards stated that the amount of small coal which is uselessly buried at the bottom of the mines is incalculably greater than that which is burned at the surface, and he expressed his hope that an efficient means of using this coal would be practically adopted.

M. Oram's specification of the method of making this artificial fuel is very minute; but the following are the most material points:—Besides the small coal, he uses mud, alluvial deposits, marl, clay, or any other earth containing vegetable matter; together with any one or more of the bituminous substances, such as mineral-tar, coal-tar, gas-tar, mineral pitch, vegetable pitch, resin, asphaltum; or saw-dust, coke-dust, and breeze. Among these various ingredients many selections may be made. For instance: one kind of the artificial fuel consists of ten cwts. of coal-dust, an equal weight of coke-dust, thirty pounds of tar, two hundred pounds of any dry mud, a marl containing vegetable matter, thirty pounds of lime, and fifty gallons of water. Another kind contains fifteen cwts. of coal-dust, five cwts. of saw-dust, forty pounds of any kind of tar, two hundred pounds of earthy matter, thirty pounds of lime or chalk, and seventy gallons of water. A third kind varies the composition thus: five cwts. of peat-earth, five cwts. of saw-dust, ten cwts. of coal-dust, thirty pounds of lime, thirty pounds of tar or other kinds of bitumen, two hundred pounds of dry earth, and seventy gallons of water. Mr. Oram gives six or seven various mixtures to illustrate the manner in which the selection may be made according to the materials furnished in the locality.

In combining these ingredients, the bituminous substances, if liquid, such as gas-tar, are used cold; but if solid, such as mineral pitch, they are melted and mixed while hot with the other materials. The bituminous matter, the earths containing vegetable matter, and the water, are stirred up together, and to them are added the coal-dust, the pounded lime, or the other ingredients, and the whole are well amalgamated by machinery. The mixture is then pressed in a mould to any desired form; and the bricks, if we may apply that name to the masses thus formed, are left to dry.

Mr. C. W. Williams, the managing director of the Dublin Steam-Packet Company, has, within the last few years, taken out two or three patents for the manufacture of fuel, in which the employment of peat is more prominently brought forward than in Mr. Oram's plan. In Mr. Williams's first patent, taken out in 1837, he describes the mode of compressing the water out of peat-moss, of mixing it with powdered lime-stone or sand, and of breaking asunder or destroying the vegetable formations and fibrous texture of the peat-bog by the use of iron rollers. The peat-moss or bog-earth is, in the first instance, stratified, or placed in alternate layers, with some absorbent material which will assist in extracting the water from it. This absorbent or recipient may be a layer of sand confined in sacking, or sand without an envelope, or textile materials, or any others that may be found efficacious. The layers of peat are made very thin, and several of them alternate with layers of the recipient or absorbent; and the whole are then compressed either by the usual screw-press or the hydraulic-press. A peculiar mode is adopted, by compressing the peat with cylinders perforated with holes, of breaking up the fibrous texture, and enabling the peat to combine more intimately with the sand, powdered lime, or small coal added to it.

By a subsequent patent, Mr. Williams introduced bituminous substances into his artificial fuel; and he treats peat-moss in such a manner as to produce four different kinds of fuel from it, viz.: a brown combustible solid, denser than oak; a charcoal, twice as compact as hard wood charcoal; an artificial coal; and an artificial coke. Dr. Ure describes the mode of procuring the turf charcoal, thus:—Immediately after being dug, the peat is triturated under revolving edge-wheels, faced with iron plates perforated all over their surface, and is forced by the pressure through these apertures, till it becomes a species of pap, which is freed from the greater part of its moisture by squeezing in a hydraulic press between layers of caya cloth, then dried, and converted into a kind of charcoal in a coking-oven. The artificial coal is made from this charcoal by first grinding the charcoal to powder, and mixing with it as much melted pitch or resin as will convert the whole into a doughy mass; and this mass is then moulded into bricks in its hot and plastic state. In relation to the economical uses of these compositions, Dr. Ure remarks:—"Mr. D'Ernst, artificer of fire-works to Vauxhall, has proved, by the severe test of coloured fires, that the turf-charcoal of Mr. Williams is twenty per cent. more combustible than that of oak. Mr. Oldham, engineer of the Bank of England, has applied it in softening his steel-plates and dies with remarkable success. But one of the most important results of Mr. Williams's invention is, that with ten cwts. of pit-coal and two cwts. and a half of his factitious coal, the same steam-power is now obtained in navigating the Company's ships as with seventeen cwts. and a half of pit-coal alone, thereby saving thirty per cent. in the stowage of fuel. What a prospect is thus opened up of turning to admirable account the unprofitable bogs of Ireland, and of producing from their inexhaustible stores a superior fuel for every purpose of arts and engineering." (*Dict. of Arts.*)

Peat is in most cases one of the ingredients employed in the preparation of the modern artificial fuels. Thus, a Major André Weschniakoff, of Russia, has taken out a patent for a mixture of coal, charcoal, coke, or peat, reduced to powder, with animal or vegetable oil, and clay or loam. Mr. Mohun, in the specification of his patent, describes a mixture of peat, slimy mud containing vegetable matter, nitre, alum, linseed, resin, coke, green vegetable matter, and various kinds of refuse, which are all mixed together, and pressed into brick-shaped masses. In another patent the same inventor added bituminous matters to the other ingredients. In some few instances these "patent fuels"—which, it must be confessed, often present such a strong family likeness that it is difficult to tell which among them can really be called new—are formed without peat. Thus, one patent is for a mixture of bituminous schist, aluminous clay, mineral oil, pulverized coal, and vegetable or mineral gelatine, combined together while hot, and poured out in a stratum on a cold slab. Another is for a mixture of tar and coal-dust, formed into bricks. A third differs from the second in having liquid clay added to the tar and coal; the aqueous part being afterwards driven off by the heat of an oven. A fourth patent relates to the use of fuller's-earth, clay, loam, or mud, with tar, pounded coal, and road dust. Another gives, as an artificial fuel, a mixture of sea-coal, clay, sand, alluvial deposits, tar, and water. Such are a few of the recent propositions in respect to this matter.

In Ireland and Scotland, and other countries where

peat-bogs exist, it is important to bring the peat into a state for fuel without admixture with any other substance, and hence much attention has been paid to this matter. In Holland, where the peat cannot be dug out of the solid mass, but is brought up in the form of mud from a considerable depth under water, the following plan is adopted:—After the liquid peat has been raised by means of small strong nets fixed to a long pole, it is brought in boats to a place prepared for the manufacture, which is flat and level. The liquid peat is spread over the ground to a depth of six inches, and the water is allowed to drain off slowly. When the peat begins to dry, men fix boards to their feet and walk over it, so as to compress it; and as soon as it will bear cutting, it is cut with a spade made, on purpose, into oblong pieces, measuring eight or nine inches by five. When completely solid, these peats, which by treading and drying have been reduced to a thickness of four or five inches, are set on edge, and afterwards stacked loosely, so that the air may pass through them, in a shed covered by a roof to protect them from the rain. They soon become hard, and burn more like wood or coal than the peat which is cut immediately from the solid mass. They give out great heat, and form a fuel which, when it is shut up in a close vessel to stop the combustion, and allowed to cool, has a considerable resemblance to charcoal.

The common mode of collecting and cutting the stiffer peat, turf, or bog of our own isles is thus:—The instrument used is the turf-spade, about four feet in length and four inches in breadth, having an edge turned up on one side for the purpose of cutting the turf into pieces, while being sliced from off the substratum. The ground being first marked out on the surface in a straight line, of any convenient length, and three or four feet in width, the surface is brought level by means of a common spade; and the turf-cutter, taking his station at one end or side, proceeds to slice off the turf, which is separated into oblong strips by means of the edge to the spade. The peats or pieces thus procured are first laid on the ground to get partially dry, and then piled up in open heaps until dry enough for use.

Some of the public journals, three or four years ago, gave some interesting details respecting the means adopted by Lord Willoughby to render peat more available as fuel. During a frequent residence in the mountainous districts of Scotland and Wales, where the inhabitants depend chiefly upon peat for their fuel, his lordship had given much attention to the manner of preparing it for use. From observing the impossibility of rendering it available in a wet season for domestic purposes, he was induced to enter upon a series of experiments for its compression by machinery. The first of these took place in 1834. The machine employed was a powerful screw-press, so adjusted that two men could produce with it a pressure of a hundred tons. A hollow receptacle in the press was charged with about seven cubical feet of wet peat, and the pressure being then applied, all the moisture was expelled from the peat through small holes in the containing vessel. In another machine a different form of receptacle was adopted to prevent the exudation of the peat itself through the small holes which were intended for the exit of the water; and this was further aided by wrapping the peat in linen cloth. As the method was expensive, and rather slow, his lordship made a further trial. He contrived an arrangement in which a piston descended upon the wet peat, beneath which was a layer of linen cloth and another of hair cloth; and the water thus found its way through without allowing any of the peat to pass. Step by step Lord Willoughby proceeded, until he produced a machine which he deemed useful enough to secure by a patent; at the same time giving permission to any one, on proper application, to use such a machine gratuitously. In the selection of the peat for compression care is taken that it is a black peat, free from fibre, and presenting somewhat the appearance of blackened butter. The peat is dug in pieces eight inches long, three wide, and three deep; since all attempts to compress the water from larger masses have failed. Before compression, the peats are placed to dry for five or six days under sheds, in the same manner as bricks and tiles; and after compression they remain under cover until perfectly free from moisture, when they are fit for use. The peat, when properly compressed, is reduced about one-third in size, hard and compact, and nearly black in colour. It has been found an excellent substitute for coal, both in domestic fireplaces and in manufactories. It has been used in calcining lime and in steam-engine furnaces. When charred in a close oven, it produces such admirable charcoal, that some cutlers have used it in forging razors and surgical instruments, and have stamped their goods with the inscription, "forged with peat," as a test of quality.

True Breeding.—Lord Chatham, who was almost as remarkable for his manners as for his eloquence and public spirit, has defined good-breeding—"Benevolence in trifles, or the preference of others to ourselves in the little daily occurrences of life."—*Sharp's Letters and Essays.*

Cadiz at Sunset.—At that hour, when the dazzling luminary has just sunk beneath the waves, and the eye can rest without aching upon the bright masses of snow-white structures that spread around,—glowing still, but no longer glaring upon the sight,—I generally ascended the Mirador of our hotel to enjoy, from those upper regions, the calm beauty of the hour, and to contemplate the unclouded glories of the western sky reflected upon the crisped bosom of the ocean, and steeping bay, creek, and headland in hues that would defy the powers of a Claude to transfer to canvas. From these little watch-towers one looks down upon a vast expanse of flat-terraced roofs, white as the walls they surmount, and, in many instances, gay with flowers, which gradually become animated by the presence of some of the dwellers within; Senoritas are there to be seen tending the blooming shrubs that impart to their terrace the appearance of a gay parterre; children at high romps; gentlemen smoking cigars; ladies fanning themselves, and stepping daintily backwards and forwards, conscious that, even there, admiring eyes are fixed upon them; while from the streets below ascends the hum of the busy throngs who at that hour are all directing their steps towards the Alameda and the Plaza de la Constitucion. But that which has the most amused me in the moving *tableau* which the roofs of Cadiz exhibit at sunset is a sportsman, accoutred in a shooting jacket and gaiters, with powder-flask, game-bag, and gun en règle, and attended by a fine pointer, who actually takes the diversion of shooting over the preserves of his terrace, with all the ceremonies that would attend a similar pursuit in a turnip-field or stubble-ground in Norfolk. The dog regularly beats about the ground and points, and puts up a sparrow or a swallow, and his master as regularly takes aim and fires; and although literally 'il tire sa poudre aux moineaux,' and that, even should he hit his bird, it inevitably falls into the street, or upon some neighbouring roof, he appears to be as much delighted as though he brought down the finest pheasant that ever whizzed out of a brake—whistles his dog to him, makes much of him, and recommences. That this ardent sportsman should like to shoot at sparrows upon the housetop is quite intelligible; but the accompaniment of the pointer is one of those solemn absurdities that defy calculation. It reminds me of the seamanship of some of our Thames-yachting amateurs, who, although they have never screwed up their courage to the sticking point of venturing into blue water, never go on a white-bait excursion to Greenwich or Blackwall without ordering close-reefed top-sails and a storm-jib to be got ready, in order to meet the contingent perils of their cruise.—*Mrs. Romer's Summer Ramble in* 1842.